

ABSTRACT

Conventionally, if the number of transmission antennas is greater than that of reception antennas, different signals simultaneously transmitted from the transmission antennas cannot be separated from one another at the receiving end, resulting in a significant degradation of received-signal quality. A transmitter and a receiver each have a plurality of antennas. The transmitter transmits a pilot signal. The receiver receives the pilot signal, calculates transmission-related information corresponding to the pilot signal, selects, based on this calculated information, a transmission signal to be used by the transmitter, and notifies the transmitter of the selected signal. The transmitter selects, from the informed transmission signal, transmission antennas and uses the selected antennas to transmit information signals, so that a signal separation can be easily performed at the receiving end.